ABSTRACT

A multi-wavelength light source includes a substrate, a fabry-perot laser laminated on the substrate that is operated by driving current below a predetermined threshold current to generate multi-wavelength light including a plurality of peaks whose wavelengths and spacing are identical to these of WDM channels. A semiconductor optical amplifier (SOA) is laminated on the substrate in an arrangement such that a slant surface of the SOA is opposed to a side surface of the fabry-perot laser, which serves to thereby amplify the multi-wavelength light output from the fabry-perot laser. The semiconductor optical amplifier is driven in a gain saturation state to reduce the relative intensity of noise in the channels of the multi-wavelength light that are simultaneously amplified.